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On the Evacanthinae leafhopper genus *Pentoffia* Kramer (Hemiptera, Cicadellidae), with description of three species from Guatemala and Mexico, checklist, and key to all known Neotropical species

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Abstract

Evacanthinae (Hemiptera, Cicadellidae) is a moderately small cosmopolitan subfamily of leafhoppers. The fauna of Guatemala and Mexico remains poorly documented, and few members of this subfamily have been recorded from dense forest habitats. Here, three species of Evacanthinae in the genus *Pentoffia*: *P. petenensis* Pinedo-Escatel, **sp. nov.** from Petén (Guatemala), *P. tlaxomulco* Pinedo-Escatel, **sp. nov.**, and *P. manantlanensis* Pinedo-Escatel & Blanco-Rodríguez, **sp. nov.** from Jalisco (Mexico), are described based on recently collected material. The discovery of *P. petenensis* represents the first record of the genus in Central America feeding on *Tectona grandis* (Lamiaceae). Detailed illustrations of external and internal morphological features are provided, together with a diagnosis to distinguish all new species from other Neotropical congeners. An updated dichotomous key to all known species of the genus, an annotated species list, distributional notes, and a distribution map are also provided.

Key Words

Auchenorrhyncha, Central America, leafhopper, morphology, Pentoffiini, taxonomy

Introduction

The leafhopper family Cicadellidae is one of the largest and most diverse insect lineages worldwide, currently comprising more than 23,000 described species occupying nearly all terrestrial habitats that support vascular plants. Of the 22 extant subfamilies presently recognized, the subfamily Evacanthinae Crumb represents a diverse yet comparatively understudied lineage, containing 651 described species placed in 83 valid genera (Dmitriev et al. 2022–onward; Wang et al. 2017). Members of Evacanthinae are distributed across all major zoogeographical regions, with a pronounced affinity to occur in humid forest ecosystems.

The subfamily is currently classified into five tribes: Evacanthini Crumb, 1911, comprising 39 valid genera and 279 species, the majority occurring in the Oriental region; Nirvanini Baker, 1923, the most species-rich and widely distributed tribe with 36 genera and 212 species; Pagaroniini Anufriev, 1978, represented by four genera and 135 species restricted to temperate areas of the Oriental region; Balbillini Baker, 1923, largely confined to the Oriental tropics and including two genera with 13 species; and Pentoffiini Wang, Dietrich & Zhang, 2017, restricted to South American forested habitats (Dmitriev et al. 2022–onward; Wang et al. 2017).

In the most recent phylogenetic analysis of Evacanthinae, the tribe Pentoffiini was recovered as monophyletic, and the genus *Pentoffia* was placed as the sister taxon to *Evanirvana* Hill, 1973, which includes *E. aurea* Hill, 1973, from Brazil, and *E. tambopata* Gonçalves, Dietrich & Takiya, 2019, from Peru (Wang et al. 2017).

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Pentoffiini can be readily distinguished from the remaining tribes of Evacanthinae by the absence of ocelli, a strong defining diagnostic character at the tribal level, and currently comprises ten described species (Wang et al. 2017; Dietrich 2004). Knowledge of the biology and host plant associations of the tribe remains scarce, and most species are known from their type localities based on limited material, often represented solely by type series.

The genus *Pentoffia* was established by Kramer (1964) using *P. nivata* from Colombia, based on a single female designated as holotype. Subsequently, Dietrich (2004), in a comprehensive revision of the Neotropical subfamily Evacanthinae, described six additional species using samples taken from fogging and light-trap collections: *P. asymmetrica*, *P. chiasma*, *P. intermedia*, *P. nuda*, and *P. tridenta* from Ecuador, and *P. nigra* from Mexico. More recently, *P. santosi* was described from specimens collected at light in Cusco, Peru (Gonçalves et al. 2019).

The present study is based on recently collected material from Petén (Guatemala) and Jalisco (Mexico). Following detailed examination of studied specimens, we describe three new species of *Pentoffia*. Additionally, an updated key to all Neotropical species of the genus, a species list, and a distribution map are herein provided.

Materials and methods

Specimens used in this study were manually collected from a commercial teak plantation (*Tectona grandis*) surrounded by discontinuous patches of rain forest in Departamento de Petén, Municipio La Libertad, Guatemala. Local community members initially discovered the insects and reported concerns regarding their potential pest status on the crop host. Mexican specimens from Sierra de Manantlán were collected by the first author using a sweep net in a lemon plantation located in the vicinity of Autlán de Navarro city, while a specimen from Tlajomulco de Zúñiga was hand-collected within a semi-urban area by Benjamín Hernández-Márquez and donated to the first author in late 2024. Specimens were collected directly into 95% ethanol and subsequently stored at –20 °C.

Morphological analyses were conducted on both male and female specimens. Abdomens were removed and cleared in 10% KOH at room temperature overnight, then rinsed in distilled water and transferred through absolute ethanol with at least three changes. Cleared abdominal structures were transferred to glycerin and stored in microvials placed beneath the corresponding pinned specimens. Label data are cited verbatim (in quotation marks) and also provided as separate lines; the latter include information obtained from specific collecting events. All known georeferenced localities were mapped and vectorized. Overall habitus images were taken at the Laboratorio Nacional de Biodiversidad (LANABIO) of the Instituto de Biología at the Universidad Nacional Autónoma de México (IBUNAM), using a ZEISS multifocal photography system equipped with an AxioCam MRc5 camera and ZEN 2012 program (blue edition). Resulting images, color, and editing were done in Photoshop® based on the colors of the pinned organisms.

Terminology herein follows Dietrich (2005), wing venation follows the system proposed by Anufriev and Emeljanov (1988), and leg chaetotaxy follows Rakitov (1998). The description of body color is based on dry-pinned specimens. All material studied is housed in the Colección Nacional de Insectos (CNIN).

Abbreviations

CNIN Colección Nacional de Insectos, Instituto de Biología, Universidad Nacional Autónoma de México, Mexico City, Mexico.

DZRJ Coleção Entomológica Prof. José Alfredo Pinheiro Dutra, Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil.

INHS Illinois Natural History Survey, University of Illinois at Urbana-Champaign, Champaign, Illinois, USA.

MUSM Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru.

USNM United States National Museum of Natural History, Washington, D.C., USA.

Results

Subfamily Evacanthinae Crumb, 1911
Tribe Pentoffiini Wang, Dietrich & Zhang, 2017

Genus *Pentoffia* Kramer, 1964

Pentoffia Kramer, 1964: 119.

Type species. *Pentoffia nivata* Kramer, 1964.

Diagnosis. Medium-sized leafhoppers. Body color yellow and black with light orange marks; female fading from yellow to white. Crown with median longitudinal carina restricted to anterior half. Pronotum punctate. Forewing with costal margin lacking supranumerary R branches and hindwing with venation pattern typical in Evacanthinae. Pygofer moderately pointed, subgenital plate upturned apically; aedeagus elongate and curved with long pair of atrial processes; shaft with or without paired lateral processes.

Known distribution. Mexico, Guatemala, Ecuador, Colombia, and Peru.

Checklist of species

1. *Pentoffia asymmetrica* Dietrich, 2004: 477
   Distribution: Ecuador (Orellana)
   Repository: USNM

2. *Pentoffia chiasma* Dietrich, 2004: 477
Distribution: Ecuador (Orellana)
Repository: USNM

3. *Pentoffia intermedia* Dietrich, 2004: 477
Distribution: Ecuador (Orellana)
Repository: USNM

4. *Pentoffia manantlanensis* Pinedo-Escatel and Blanco-Rodríguez, sp. nov.
Distribution: Mexico (Jalisco)
Repository: CNIN

5. *Pentoffia nigra* Dietrich, 2004: 477
Distribution: Mexico (Veracruz)
Repository: USNM

6. *Pentoffia nivata* Kramer, 1964: 120
Distribution: Colombia (Cali)
Repository: USNM

7. *Pentoffia nuda* Dietrich, 2004: 477
Distribution: Ecuador (Orellana)
Repository: USNM

8. *Pentoffia petenensis* Pinedo-Escatel, sp. nov.
Distribution: Guatemala (Petén)
Repository: CNIN

9. *Pentoffia tlaxomulco* Pinedo-Escatel, sp. nov.
Distribution: Mexico (Jalisco)
Repository: CNIN

10. *Pentoffia tridenta* Dietrich, 2004: 476
Distribution: Ecuador (Orellana)
Repository: USNM and INHS

11. *Pentoffia santosi* Gonçalves, Dietrich & Takiya, 2019: 276
Distribution: Peru (Cusco)
Repository: DZRJ and MUSM

Key to all known species of *Pentoffia* (males)

1	Pronotum with 3 longitudinal black stripes; forewing surface mostly coloration dark brown; crown bright orange distally; costal margin bright orange; two m–cu crossveins 2
–	Pronotum without or 1 median longitudinal black stripe; forewing surface pale yellow; crown usually pale if not with yellowish or orange marks; costal margin concolorous; three or more m–cu crossveins 5
2	Atrial processes elongated and beyond male capsule; in posterior or ventral view crossed 3
–	Atrial processes long but not projected outside male capsule, in caudal view parallel-sided ..... *P. petenensis* Pinedo-Escatel, sp. nov.
3	Crown mostly black; pronotum in profile below lateral carine mostly black ..... *P. tlaxomulco* Pinedo-Escatel, sp. nov.
–	Crown with well-defined T-shaped band; pronotum in profile below lateral carine mostly yellowish 4
4.	Ventrobasal margin of shaft recurved through its length to apex; in lateral view atrial processes uniform towards apex and twisted preapically ..... *P. nigra* Dietrich
–	Ventrobasal margin of shaft somewhat straight then curved dorsad at 90°; in lateral view atrial processes widening to preapical portion then very narrow ..... *P. manantlanensis* Pinedo-Escatel and Blanco-Rodríguez, sp. nov.
5	Dorsum with median longitudinal stripe 6
–	Dorsum without median longitudinal stripe 7
6	Median dorsal stripe not extended beyond pronotum ..... *P. intermedia* Dietrich
–	Median dorsal stripe extended along anal margin of forewing ..... *P. tridenta* Dietrich
7	Crown with distinct large black maculae near anterior margin 8
–	Crown with small black preapical spot or without black markings 10
8	Crown and face with orange marks 9
–	Crown and face concolorous ..... *P. asymmetrica* Dietrich
9	Crown with single dark macula near anterior margin ..... *P. santosi* Gonçalves, Dietrich, and Takiya
–	Crown with trilobed dark macula near anterior margin ..... *P. chiasma* Dietrich
10	Crown midlength longer than width ..... *P. nivata* Kramer
–	Crown midlength shorter than width ..... *P. nuda* Dietrich

Pentoffia petenensis Pinedo-Escatel, sp. nov.

https://zoobank.org/9044B0A9-F448-49AB-9500-E846B4EABBAC

Figs 1–6

Material examined. ***Holotype.*** GUATEMALA • ♂, Departamento de Petén, Municipio La Libertad; 16°46'32.5"N, 90°07'08.7"W; 24 Sept. 2019; José F. García-Ochaeta Coll.; ex: *Tectona grandis*, colecta directa, GUAPET216; CNIN.

Paratypes. GUATEMALA • 2 ♂♂ and 1 ♀; same collection data as for holotype; CNIN.

Other material examined. GUATEMALA • 1 ♂ and 1 ♀; Departamento de Petén, Municipio La Libertad; 16°46'32.4"N, 90°07'08.3"W; 23 Sept. 2019; José F.

García-Ochaeta Coll.; ex: *Tectona grandis*, colecta directa, GUAPET216; INHS.

Etymology. The species epithet refers to the region where specimens were collected, Departamento de Petén in Guatemala.

Type locality. Municipality of La Libertad (Guatemala).

Diagnosis. This species can be easily differentiated from other congeners in (1) size of transverse black band of crown, (2) overall color pattern of dorsal coloration displaying a light orange band, and (3) atrial processes of aedeagus bearing an asymmetric uniseriate tooth on ventral margin.

Description. Male. Body coloration black with light orange and yellowish marks on the crown and costal margin of forewing bold orange (Fig. 1A). Crown light orange with central T-shaped band at mid-height running over pronotum and scutellum; basolateral margins next to eyes with single black stripe (Fig. 1A). Pronotum anteriorly light orange and yellowish in distal area; two broad black pairs of bands slightly curved, one above lateral margin in dorsal view and second in lateral view below lateral margin (Fig. 2A). Anteclypeus, ocellocular area, lora, and gena light orange with yellow specks and center whitish (Fig. 3A). Forewing color fades from black to brownish distally; membrane hyaline, clear patches on jugal lobe and apical cells (Figs 1A, 2A). Hindwing translucent and hyaline. Venter fades from whitish to yellowish. Legs yellowish with exception front tibia, tarsomere I, and apex of front femur blackish.

Female. Overall body color whitish with single black longitudinal T-band running from crown to scutellum, pronotum with an adjacent narrow lateral pair of black stripes (Figs 1B, 2B). Rostrum as male but lighter and spanning yellowish in color (Fig. 3B). Venter and legs same as male but much lighter in color.

Male genitalia. Pygofer moderately elongate, 1.3× longer than tall, anterior margin strongly excavated; posterior margin pointed; without processes; three rows of stout long setae distally, small and scattered setae running along posterior margin (Fig. 4A). Anal tube small; membranous; as long as wide; four fine moderately long

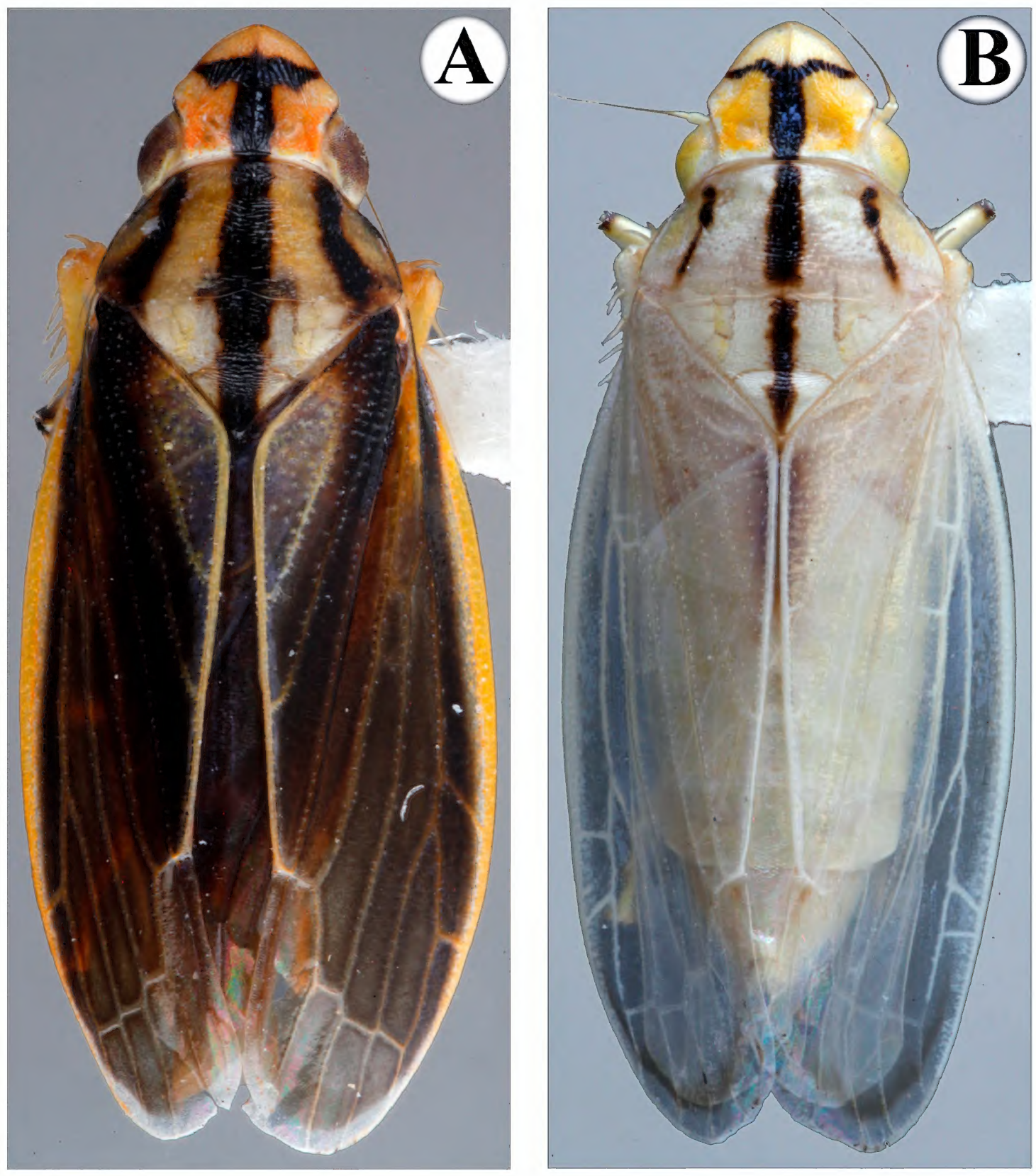

Figure 1. Dorsal habitus of **A.** Holotype male and **B.** Paratype female of *Pentoffia petenensis* Pinedo-Escatel, sp. nov.

Figure 2. Lateral habitus of **A.** Holotype male and **B.** Paratype female of *Pentoffia petenensis* Pinedo-Escatel, sp. nov.

setae at apex. Subgenital plate elongated; apex blunt; preapical margin excavated; uniseriate row of 12–15 long fine setae and another row of 5–10 small fine setae on outer margin (Fig. 4B). Style, with base elongated, pointed, apex curved; medial lobe developed but not protuberant; apophysis short and strongly curved to outer side, apex pointed, without fine setae or tooth on inner side (Fig. 4C). Connective narrow and 2× longer than aedeagus length. Aedeagus with atrial parallel processes extended posteromesad with asymmetric uniseriate teeth on ventral margin then recurved at 75° (Fig. 4D, E), in lateral view widening to preapical portion then very narrow to apex (Fig. 4E); apex sharply pointed. Shaft 2.2× longer than wide, apex blunt, posterad bent dorsad; without lateral processes.

Female terminalia. Of the two pinned female specimens available for this species, neither retains the abdomen. Consequently, the description is based on photographs: pygofer subconical; 2× longer than wide; 3–4 rows of long stout setae. Female sternite VII subtrapezoidal; posterior concave with mesal margin weakly produced.

Plant species associated. *Tectona grandis* L.f. (Lamiaceae), Fig. 5A.

Biological notes. The type specimens were sampled from an apparently high-density population, with females seemingly more abundant in the reported host plant (Fig. 5B–C).

Distribution. Restricted to Departamento de Petén, Guatemala (Fig. 13).

Measurements in millimeters. Male. Body, length 6.09; width 1.87. Head, width 1.17; midlength 0.73; eye width 0.34; eye length 0.25; crown mid width before eyes 0.76; crown posterior width between eyes 0.66; frontoclypeus width 0.56; frontoclypeus length 1.09; anteclypeus width 0.33; anteclypeus length 0.45; lorum width 0.10; lorum length 0.32; gena width 0.28; gena length 0.68. Pronotum, width 1.53; length 0.73. Scutellum, width 1.23; length 0.83. Forewing, length 4.65.

Female. Body, length 7.85; width 2.01. Head, width 1.43; midlength 0.96; eye width 0.37; eye length 0.28; crown mid width before eyes 0.96; crown posterior width between eyes 0.84; frontoclypeus width 0.78; frontoclypeus length 1.32; anteclypeus width 0.45; anteclypeus length 0.53; lorum width 0.09; lorum length 0.28; gena width 0.35; gena length 0.90. Pronotum, width 1.91; length 0.87. Scutellum, width 1.53; length 1.15. Forewing, length 5.97.

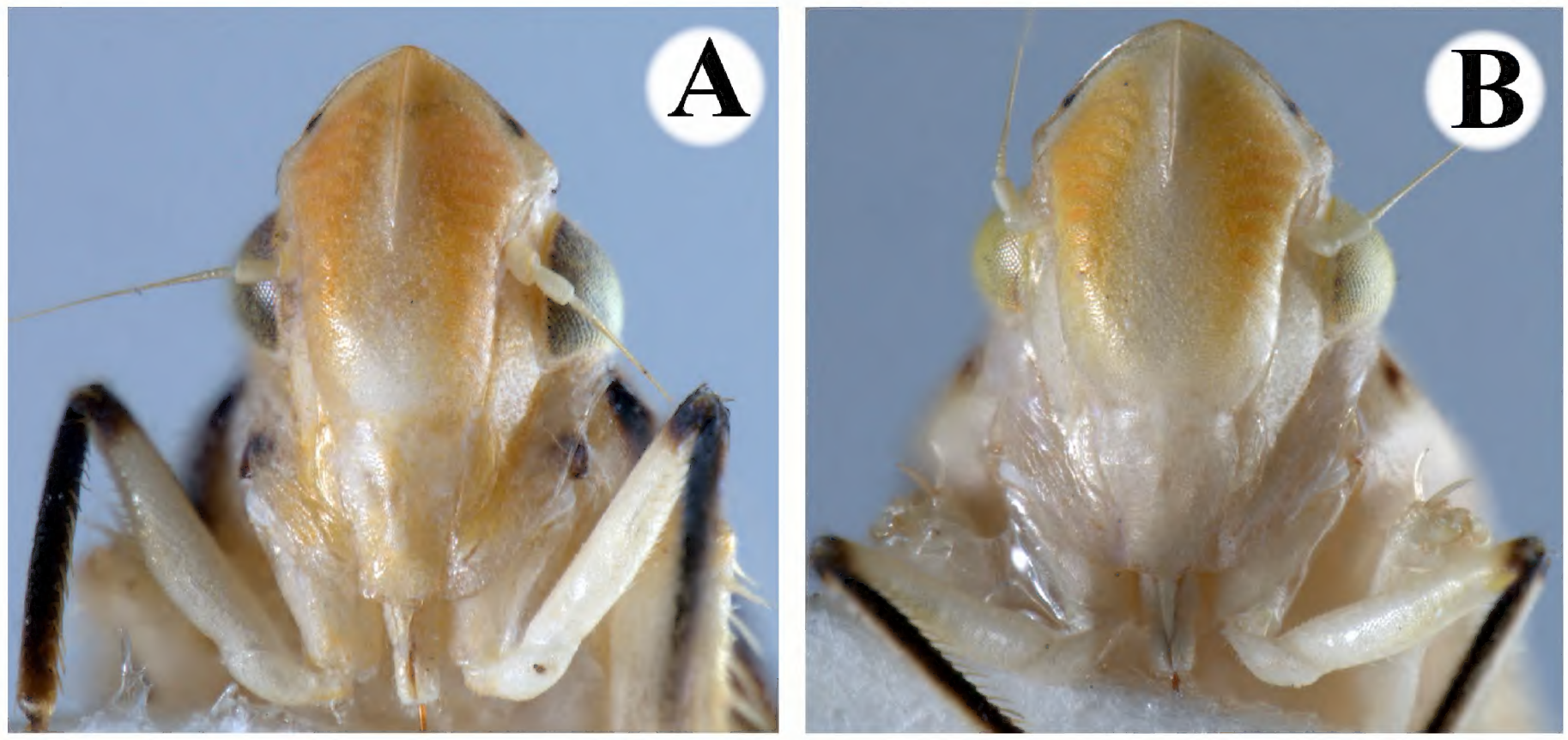

Figure 3. Anterior view of **A.** Holotype male and **B.** Paratype female of *Pentoffia petenensis* Pinedo-Escatel, sp. nov.

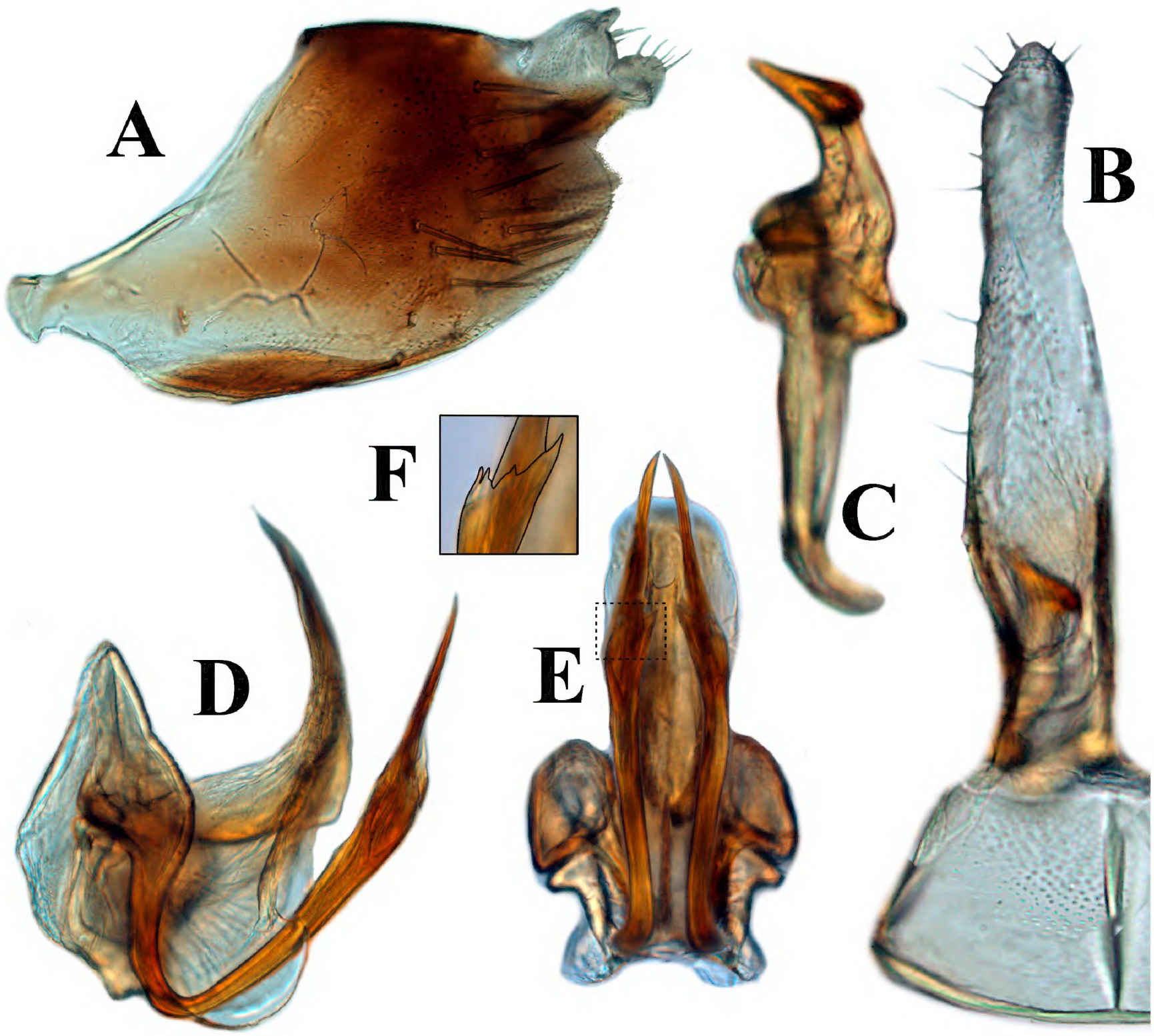

Figure 4. Male genital capsule of *Pentoffia petenensis* Pinedo-Escatel, sp. nov. **A.** Pygofer and anal tube, lateral view; **B.** Subgenital plate, ventral view; **C.** Style, ventral view; **D.** Aedeagus, lateral view; **E.** Aedeagus, posterior view; **F.** Line drawing of details of aedeagal processes.

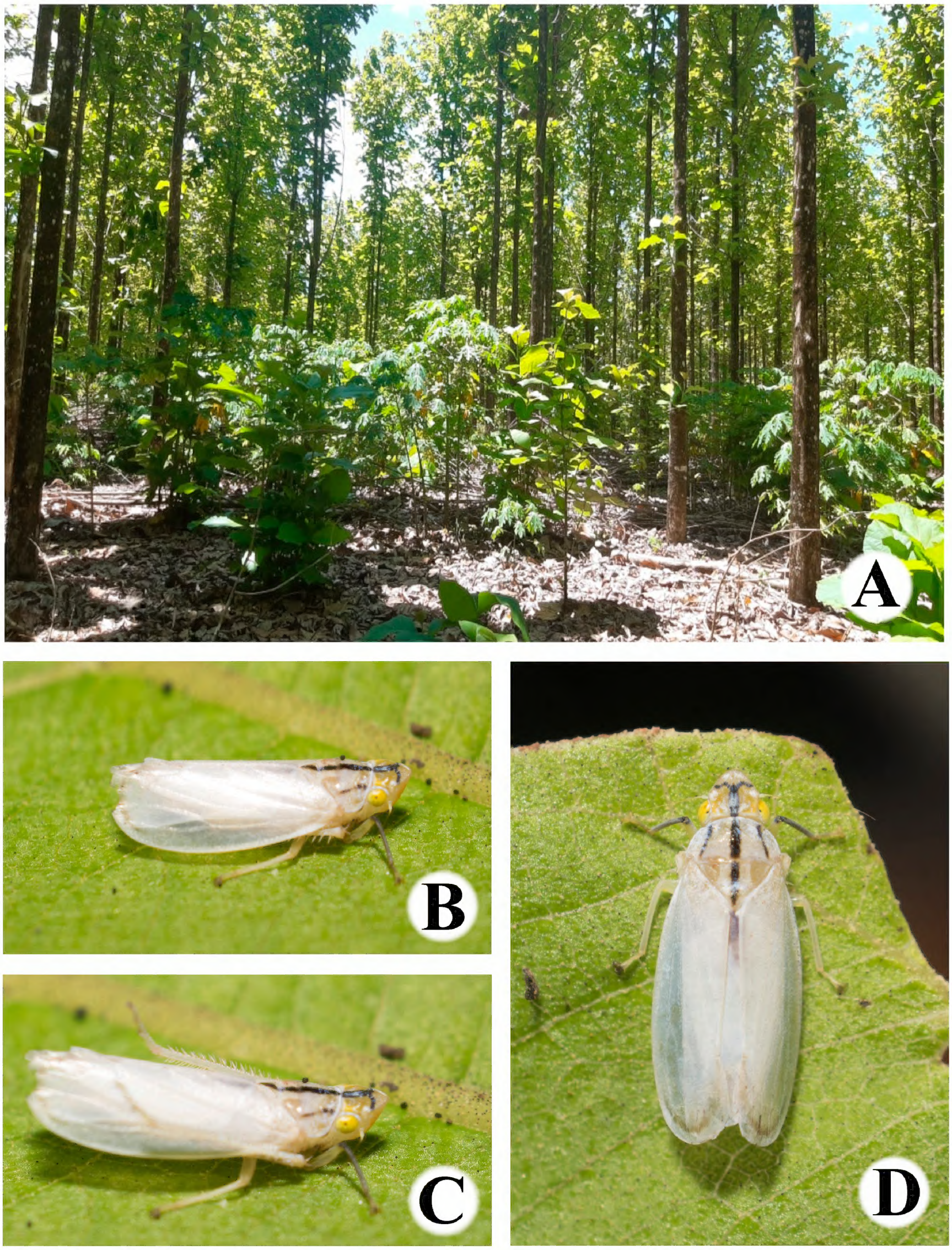

Figure 5. Habitat and life photograph of *Pentoffia petenensis* Pinedo-Escatel, sp. nov. **A.** Field of *Tectona grandis* in Petén, Guatemala; **B, C**. Female *in situ* on leaves of *T. Grandis*.

Remarks. This species shares external similarities in appearance to other black and yellowish species (*P. nigra* and *P. manantlanensis*). However, the forewing is black with light orange diffuse patches, contrasting to those darker found in *P. nigra* and lighter in *P. manantlanensis*, while the remaining species are whitish. The aedeagal shaft is curved dorsad, also in *P. tridenta*, *P. manantlanensis*, *P. nigra*, and *P. santosi*, but with a blunt apex. The atrial processes are parallelly extended posteromesad with asymmetric uniseriate teeth on the ventral margin, then recurved at 75°, and the apex is sharply acute.

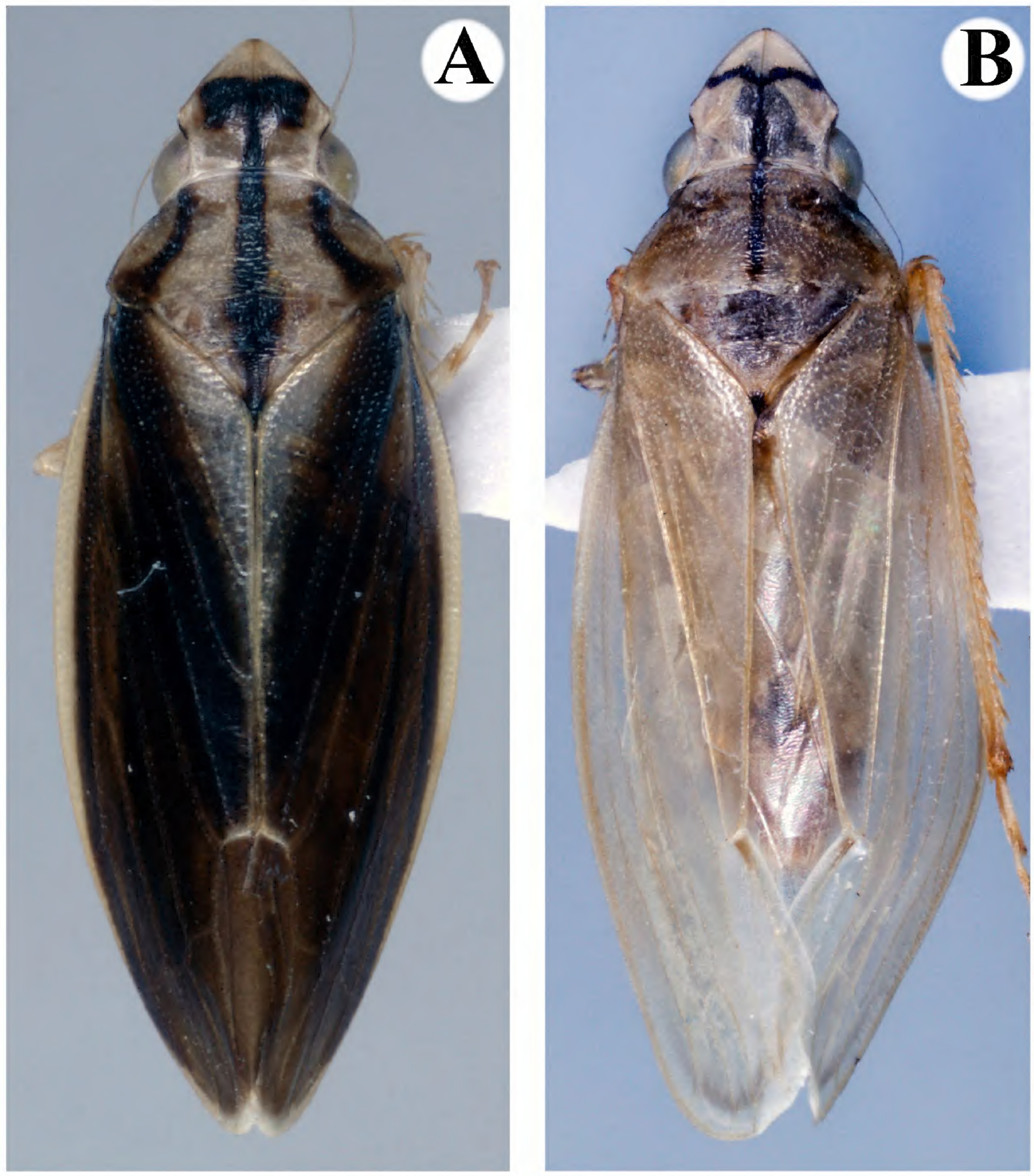

Figure 6. Dorsal habitus of **A.** Holotype male and **B.** Paratype female of *Pentoffia manantlanensis* Pinedo-Escatel & Blanco-Rodríguez, sp. nov.

***Pentoffia manantlanensis* Pinedo-Escatel & Blanco-Rodríguez, sp. nov.**

https://zoobank.org/0AA826BF-F837-462F-B4B3-151ED1B7824A

Figs 6–10

Material examined. ***Holotype.*** MEXICO • ♂, Jalisco**,** 4.9 km E pasando Puerto Los Mazos sobre Carr. Casimiro Castillo – Autlán de Navarro; 19°42'10.4"N, 104°22'03.5"W; 11 Nov. 2017; Pinedo-Escatel, J. A. Coll.; ex: *Citrus* × *limon*, colecta directa; CNIN.

Paratypes. MEXICO • 4 ♂♂ and 1 ♀; same collection data as for holotype; CNIN.

Etymology. The species epithet refers to the Biosphere Reserve Sierra de Manantlán (Jalisco State, Mexico), based on all available records of the type series collected near this region.

Type locality. 4.9 km E Puerto Los Mazos (Mexico).

Diagnosis. This species externally displays several characteristics found in other similar species, but using the next combination of features, can be easily differentiated: (1) dorsal color pattern, (2) aedeagal arrangement of atrial processes that crossed near base, and (3) aedeagal apex of shaft truncate in ventral view.

Description. Male. Body coloration black with pale marks on crown, pronotum, scutellum, costal margin of forewing, and basal forewing cell (Fig. 6A). Crown pale with dark brownish specks with broad central T-shaped line at mid-height running thinner over pronotum and scutellum; basolateral margins next to eyes with single

Figure 7. Lateral habitus of **A.** Holotype male and **B.** Paratype female of *Pentoffia manantlanensis* Pinedo-Escatel & Blanco-Rodríguez, sp. nov.

fain black stripe (Fig. 6A). Pronotum fades from pale to brownish; one thin arcuate black pair of lateral bands above lateral margin (Fig. 7A). Anteclypeus, ocellocular area, lora and gena pale with light yellowish marks and brownish specks (Fig. 8A). Forewing fades from dull black to light brownish distally; membrane hyaline, clear patches on jugal lobe (Figs 6A, 7A). Hindwing translucent and hyaline. Venter fades from pale to light yellowish. Legs light yellowish with exception front tibia, tarsomere I and II are blackish.

Female. Overall body color yellow with black longitudinal thin T-band running from crown to pronotum without adjacent lateral pair of black stripes (Figs 6B, 7B). Rostrum as male but paler in color (Fig. 8B). Venter and legs as male but lighter in overall color.

Male genitalia. Pygofer elongate, 1.6× longer than tall, anterior margin weakly excavated; posterior margin pointed; without processes; 4 rows of stout long setae near posterior margin, fine setae running along posterior margin (Fig. 9A). Anal tube small; membranous; wider than long; several fine short setae at apex. Subgenital plate long; apex blunt; mesal margin slightly excavated; preapical uniseriate row of 8–10 long fine setae and outer margin with few scattered small stout setae (Fig. 9B). Style, with base moderately long, pointed, apex straight; medial lobe developed and rounded; apophysis short and strongly curved to outer side, apex sharply acute, without fine setae or tooth on inner side (Fig. 9C). Connective narrow and 1.5× longer than aedeagus length. Aedeagus with atrial processes extended posteromesad, recurved at 80° (Fig. 9D, E), in lateral view atrial processes uniform, in ventral view crossed basally and widened preapically; apex pointed (Fig. 9E). Shaft 2.6× longer than wide, apex truncate, posterad slightly bent dorsad; without lateral processes.

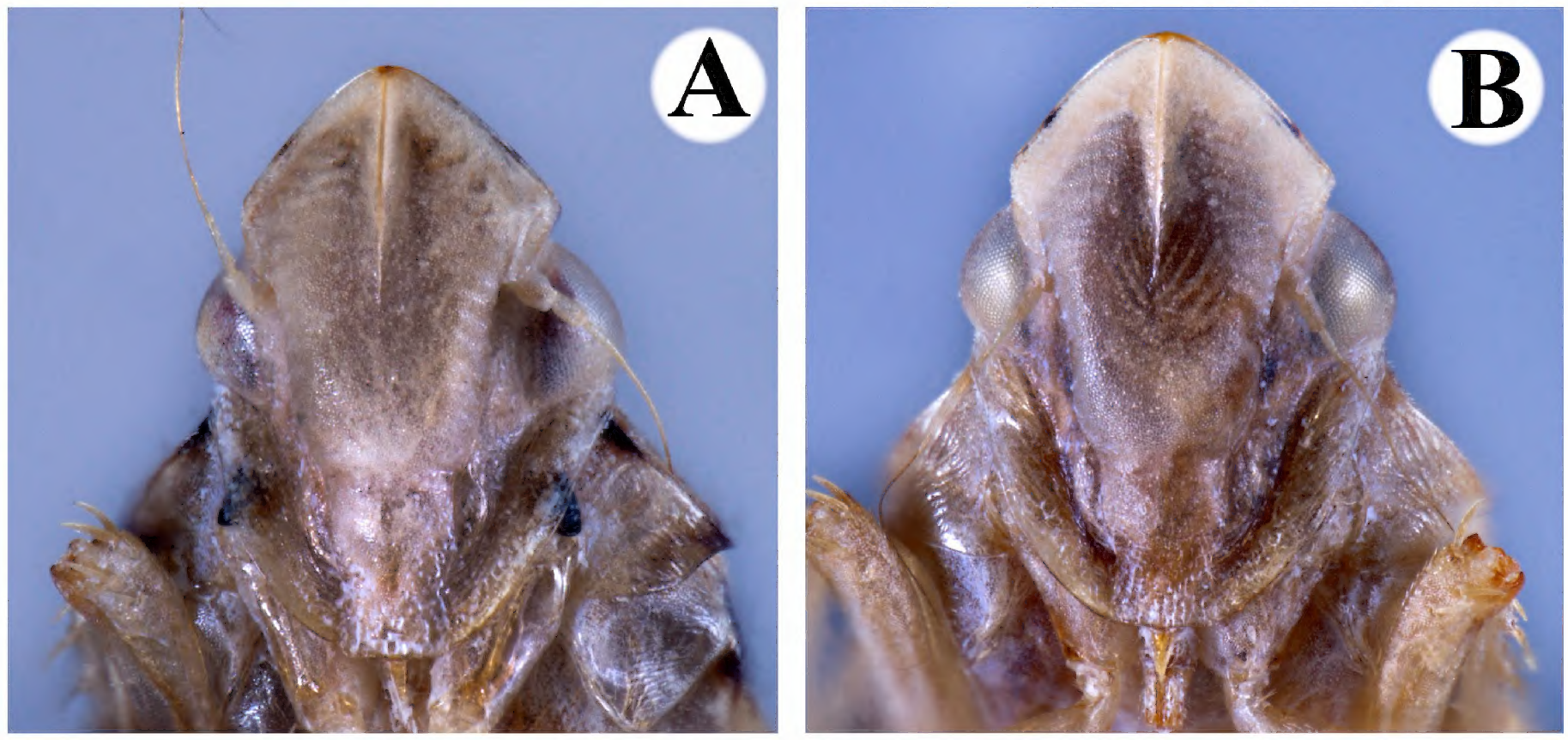

Figure 8. Anterior view of **A.** Holotype male and **B.** Paratype female of *Pentoffia manantlanensis* Pinedo-Escatel & Blanco-Rodríguez, sp. nov.

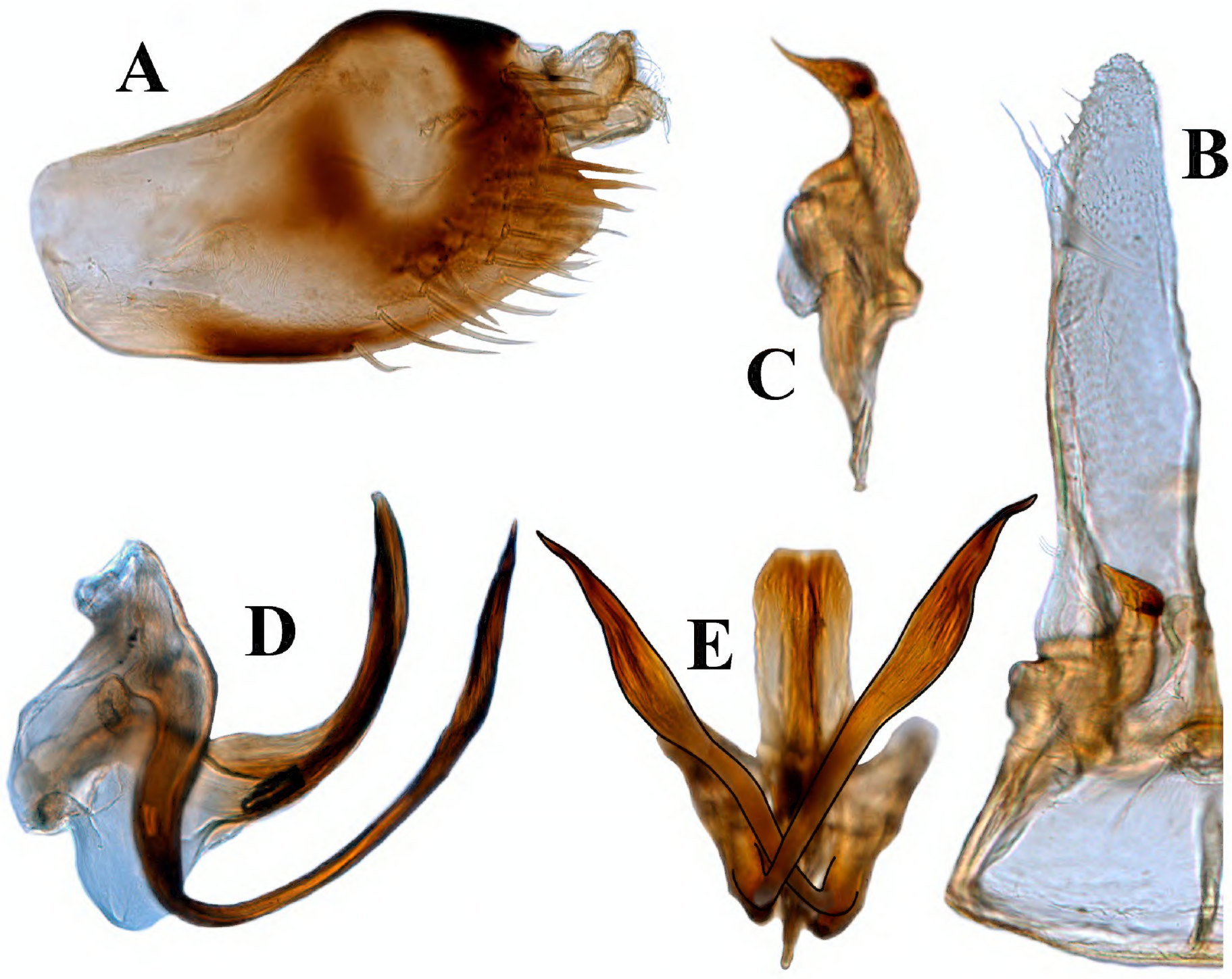

Figure 9. Male genital capsule of *Pentoffia manantlanensis* Pinedo-Escatel & Blanco-Rodríguez, sp. nov. **A.** Pygofer and anal tube, lateral view; **B.** Subgenital plate, ventral view; **C.** Style, ventral view; **D.** Aedeagus, lateral view; **E.** Aedeagus, posterior view.

Female terminalia. Pygofer with posterior margin rounded; 2.2× longer than tall; 4–6 rows of moderate long stout setae with another row of fine long near ventrolateral margin (Fig. 10A). Ovipositor protruding beyond pygofer apex. Female sternite VII subquadrate; 1.8× wider than long, posterior margin concave with a pair of medial teeth (Fig. 10B). First valve projected beyond anal tube, strongly recurved through most length and narrowing toward apex; dorsal sculpturing pattern imbricate reaching dorsal margin and mostly restricted to apex (Fig. 10C). Second valvula recurved; blunt teeth on dorsum not prominent and regularly shaped; ducts narrow and reach dorsal margin (Fig. 10D). Third valvula very narrow and apex strongly expanded without stout or fine apical setae (Fig. 10D).

Distribution. Restricted to surroundings of Sierra de Manantlán in Jalisco state, Mexico (Fig. 13).

Plant species associated. *Citrus* × *aurantifolia* (Christm.) Swingle (Rutaceae).

Measurements in millimeters. Male. Body, length 6.88; width 1.81. Head, width 1.21; midlength 0.80; eye width 0.26; eye length 0.29; crown mid width before eyes 0.81; crown posterior width between eyes 0.73; frontoclypeus width 0.88; frontoclypeus length 1.23; anteclypeus width 0.30; anteclypeus length 0.47; lorum width 0.10; lorum length 0.27; gena width 0.31; gena length 0.71. Pronotum, width 1.73; length 0.77. Scutellum, width 1.21; length 0.88. Forewing, length 5.33.

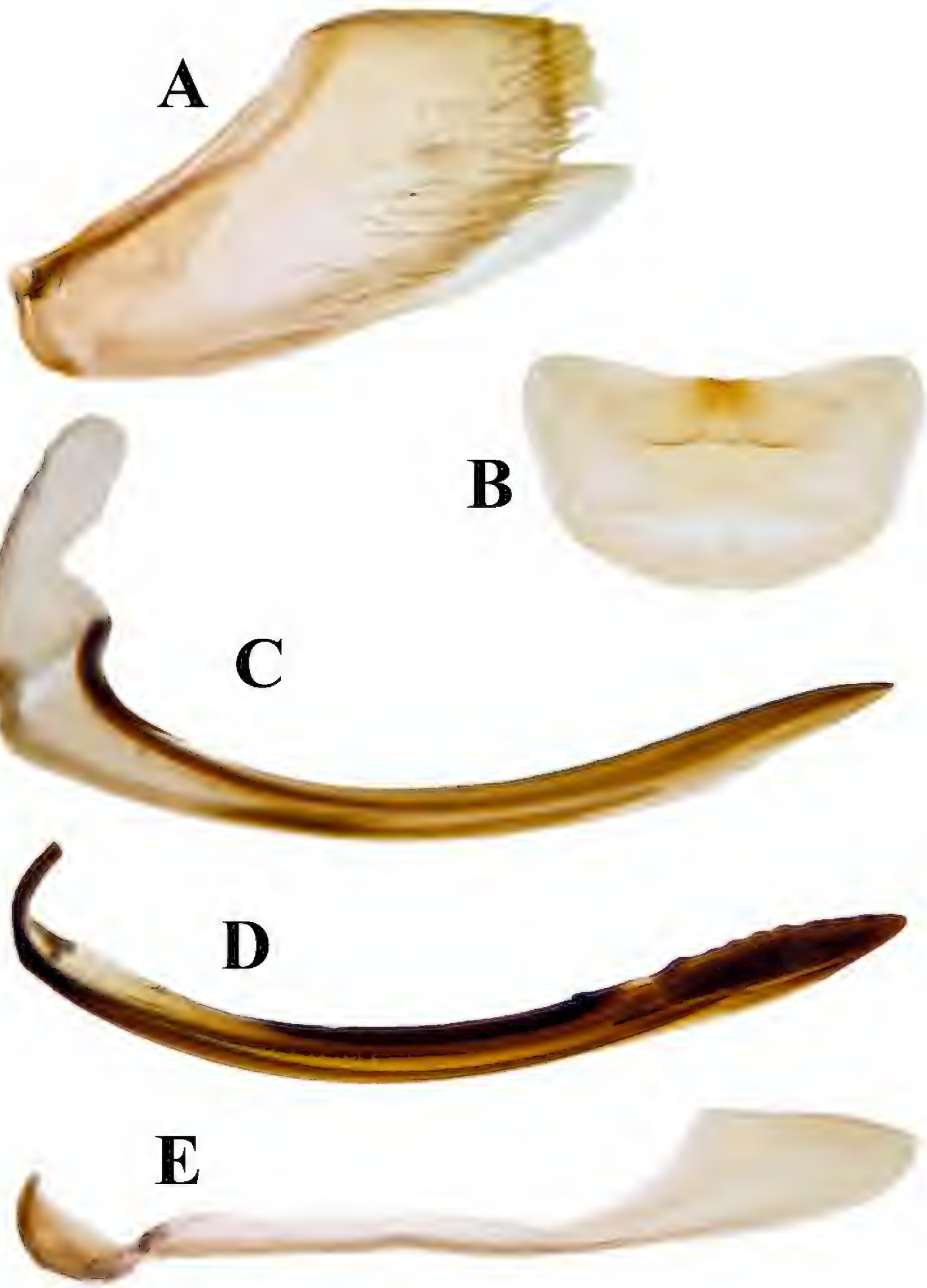

Figure 10. Female genital capsule of *Pentoffia manantlanensis* Pinedo-Escatel & Blanco-Rodríguez, sp. nov. **A.** Pygofer, lateral view; **B.** Sternite VII, ventral view; **C.** First valvula, lateral view; **D.** Second valvula, lateral view; **E.** Gonoplac, lateral view.

Female. Body, length 8.30; width 2.02. Head, width 1.50; midlength 1.01; eye width 0.37; eye length 0.41; crown mid width before eyes 1.03; crown posterior width between eyes 1.09; frontoclypeus width 1.09; frontoclypeus length 1.51; anteclypeus width 0.37; anteclypeus length 0.53; lorum width 0.11; lorum length 0.29; gena width 0.37; gena length 0.94. Pronotum, width 1.89; length 0.93. Scutellum, width 1.51; length 0.8882. Forewing, length 5.25.

Remarks. The dorsum of this species resembles the color pattern in *P. nigra* and *P. petenensis* but differs in light orange marks, whereas the female fades from pale to light brownish. The forewing is mostly black with light brown patches, opposite to the morphology observed in *P. nigra* and *P. petenensis*, while the remaining species are whitish. The aedeagal shaft is curved dorsad but with a truncate apex, and the atrial processes are directed posteromesad, widening preapically and crossed basally, then recurved at 80° with the apex pointed.

Pentoffia tlaxomulco Pinedo-Escatel, sp. nov.

https://zoobank.org/2559F7ED-D731-4D37-A827-B4E0F38D33EB

Figs 11, 12

Material examined. ***Holotype.*** MEXICO • ♂, Jalisco, Tlajomulco de Zuñiga, Instituto Tecnológico de Tlajomulco; 20°26'34.3"N, 103°25'15.1"W; 14 Aug. 2024; Hernández-Márquez, B. Coll.; colecta directa; CNIN.

Etymology. The species epithet is based on a combination of the Nahuatl words *tlalli* (land), *xomúlli* (corner), and *co* (place), referring to the "Land in the corner," the region where the specimen was collected.

Type locality. Tlajomulco de Zuñiga (Mexico).

Diagnosis. External morphology resembles *P. nigra* and *P. manantlanensis*. Key features to separate from these are (1) a broad T-band covering most surface of crown and (2) aedeagal atrial processes notoriously larger and slender than connective.

Description. Male. Body coloration black with light yellowish marks on crown and costal margin of forewing (Fig. 11A). Crown yellowish with central T-shaped broad line; basolateral margins next to eyes with single black stripe (Fig. 11A). Pronotum anteriorly yellowish distally; two broad black pairs of bands slightly curved, one above lateral margin visible from dorsal view and second placed parallel slightly below lateral margin (Fig. 11A). Anteclypeus, ocellocular area, lora and gena yellowish (Fig. 11C). Forewing color black to strong brownish; membrane hyaline, clear patches on anteapical cells (Fig. 11A, B). Hindwing translucent and hyaline. Venter yellowish. Legs are mostly yellowish but apex of front femur, tarsomere I, and tibia black.

Female. Unknown.

Male genitalia. Pygofer moderately elongate, 1.5× longer than tall, anterior margin slightly excavated; posterior margin slightly pointed; without processes; 3 rows of stout long setae distally, small and scattered setae intercalated along posterior margin (Fig. 12A). Anal tube small; membranous; as long as wide; five fine moderately long setae at apex. Subgenital plate elongated; apex curved and digitated; preapical margin excavated; uniseriate row of 12 long fine setae and another row of 5 small fine setae on outer margin (Fig. 12B). Style, with base very elongated, round, apex curved; medial lobe developed but not protuberant; apophysis short and curved to outer side, apex pointed, without fine setae or tooth on inner side (Fig. 12C). Connective narrow and 1.8× longer than aedeagus length. Aedeagus (Fig. 12D) with atrial parallel processes extended posteromesad, without teeth, and recurved at 45° (Fig. 12E), in lateral view widening to preapical portion then very narrow to apex and strongly compressed (Fig. 12E); apex sharply pointed. Shaft 1.2× longer than wide, apex blunt, posterad bent dorsad; without lateral processes.

Female terminalia. Unknown.

Plant species associated. Unknown.

Biological notes. Unknown.

Distribution. Restricted to state of Jalisco, Mexico (Fig. 13).

Measurements in millimeters. Male. Body, length 6.89; width 1.85. Head, width 1.16; midlength 0.73; eye width 0.33; eye length 0.26; crown mid width before eyes 0.77; crown posterior width between eyes 0.66; frontoclypeus width 0.56; frontoclypeus length 1.09; anteclypeus width 0.33; anteclypeus length 0.45; lorum width 0.10; lorum length 0.32; gena width 0.28; gena length 0.65. Pronotum, width 1.53; length 0.73. Scutellum, width 1.20; length 0.80. Forewing, length 4.70.

Remarks. Overall appearance is darker than *P. nigra* and *P. manantlanensis*. The forewing is darker than *P. nigra* and *P. manantlanensis*, which show light orange marks. The aedeagal shaft is similarly curved dorsad to other species but with a blunt apex, and the atrial processes are parallelly extended posteromesad, having asymmetric uniseriate teeth on the ventral margin, then recurved at 75° with the apex sharply acute.

Pentoffia nigra Dietrich 2004

Pentoffia nigra Dietrich, 2004: 477

Type material examined. ***Holotype.*** MEXICO • ♂, Veracruz, Coyame, Lake Catemaco; 10–18 July 1963; D. R. Whitehead Coll.; black light; USNM.

Distribution. Restricted to peripheral area of Lake Catemaco in Veracruz state, Mexico (Fig. 13).

Measurements in millimeters. Male. Body, length 6.80; width 1.80. Head, width 1.20; midlength 0.81; eye width 0.28; eye length 0.27; crown mid width before eyes 0.80; crown posterior width between eyes 0.72; frontoclypeus width 0.88; frontoclypeus length 1.21; anteclypeus width 0.31; anteclypeus length 0.46; lorum width 0.10; lorum length 0.27; gena width 0.31; gena length 0.70. Pronotum, width 1.72; length 0.79. Scutellum, width 1.19; length 0.86. Forewing, length 5.30.

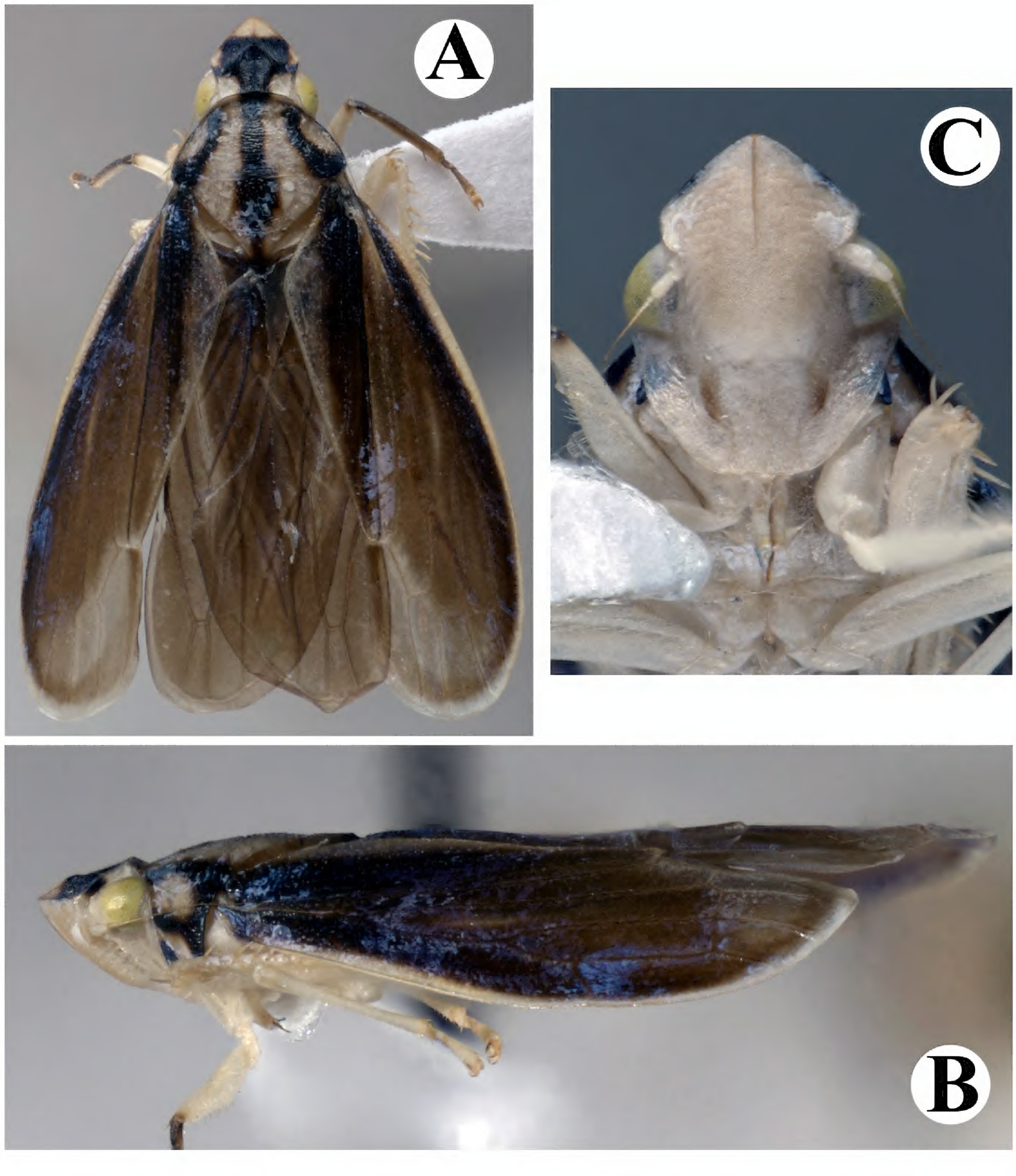

Figure 11. Holotype in **A.** Dorsal view, **B.** Lateral view, and **C.** Anterior view of *Pentoffia tlaxomulco* Pinedo-Escatel, sp. nov.

Discussion

The classification of Evacanthinae has undergone repeated revisions over the past eight decades, with many changes affecting tribal assignments. Historically, several taxa were placed in alternative subfamilies; for example, Evacanthini was at times associated with Cicadellinae or Nirvaninae, under Balbillini (Dietrich 2004; Dietrich et al. 2001). More recent studies, incorporating robust taxon sampling and discrete morphological characters, have recovered Evacanthinae as monophyletic and have provided a well-supported hypothesis of relationships among its constituent lineages (Dietrich et al. 2017; Wang et al. 2017).

Wang et al. (2017) recognized the tribe Pentoffiini based on the autapomorphic absence of ocelli, a useful diagnostic character for distinguishing among tribes of Evacanthinae, and placed two genera in Pentoffiini: *Evanirvana* (previously treated as *incertae sedis* within Evacanthinae) and *Pentoffia* (transferred from Nirvanini). Phylogenetic analyses recovered Pentoffiini as sister to the Oriental tribe Balbillini, and despite these prior studies, some genera remain incompletely sampled or

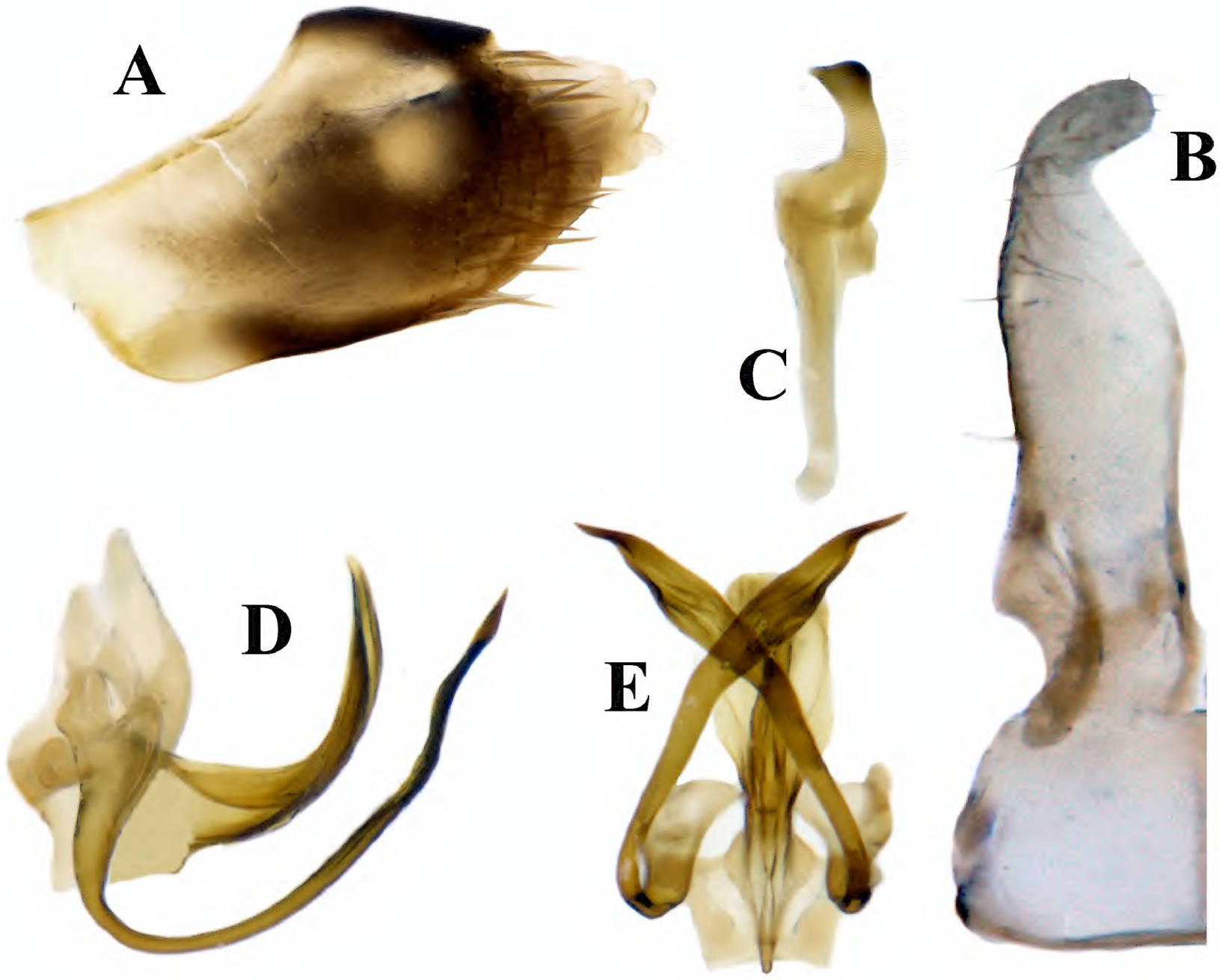

Figure 12. Male genital capsule of *Pentoffia tlaxomulco* Pinedo-Escatel, sp. nov. **A.** Pygofer and anal tube, lateral view; **B.** Subgenital plate, ventral view; **C.** Style, ventral view; **D.** Aedeagus, lateral view; (**E**) Aedeagus, posterior view.

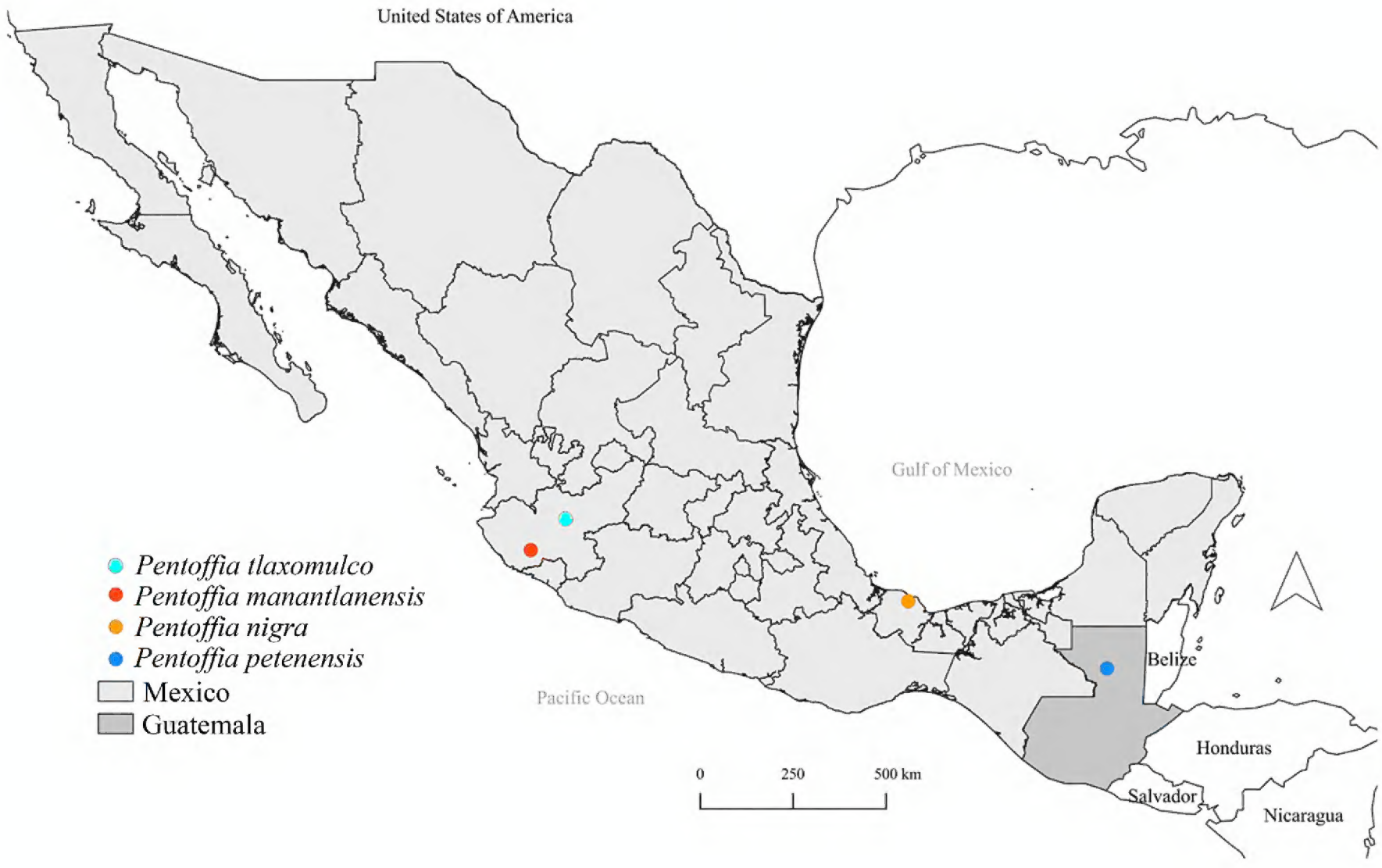

Figure 13. Map of distribution of *Pentoffia* in Mexico and Guatemala.

ambiguous in their tribal placement. Additional work is required to resolve and clarify outstanding taxonomic uncertainties.

Currently, seven species of *Pentoffia* are known to occur in humid South American forests (Ecuador, Colombia, and Peru), whereas four species, *P. nigra*, *P. manantlanensis*, *P. petenensis*, and *P. tlaxomulco*, are recorded from northern localities (Mexico and Guatemala), highlighting a disjunct distribution and revealing conspicuous gaps in our knowledge across Central America, a region that remains poorly sampled for many leafhoppers. Most South American species exhibit a pale ground color, in many cases white to yellowish, with characteristic darker marks on the crown that varies in size and shape. By contrast, the species from Mexico and Guatemala are markedly darker, with overall black to brownish integuments, pale orange markings, and a distinctive broad black T-shaped band extending from the mid-crown to the apex of the scutellum (Figs 1, 6).

In addition, and notably, the terminalia of *Pentoffia* species from both males and females display diagnostic and stable internal structures that differ consistently among Neotropical taxa and permit unambiguous species discrimination (Figs 4, 9). Given the apparent incongruence between external color patterns and genital morphology, future studies integrating broader geographic sampling, comparative morphology, and molecular phylogenetics will support (1) hypotheses of species boundaries and relationships within *Pentoffia*, (2) elucidation of the evolutionary or ecological drivers of potentially contrasting color patterns, and (3) filling gaps in distribution across Central America.

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